

Title (en)

CURING POLYMER LAYERS ON SEMICONDUCTOR SUBSTRATES USING VARIABLE FREQUENCY MICROWAVE ENERGY

Title (de)

POLYMERSCHICHTHÄRTUNG AUF HALBLEITERSUBSTRATEN MIT VARIABLER FREQUENZ MIKROWELLENENERGIE

Title (fr)

CUISSON DE COUCHES POLYMERES DEPOSEES SUR DES SUBSTRATS SEMI-CONDUCTEURS, AU MOYEN D'ENERGIE A HYPERFREQUENCES VARIABLES

Publication

EP 0930943 A1 19990728 (EN)

Application

EP 97939826 A 19970905

Priority

- US 9715710 W 19970905
- US 71604396 A 19960919

Abstract (en)

[origin: US5879756A] Rapid curing of polymer layers on semiconductor substrates is facilitated using variable frequency microwave energy. A semiconductor substrate having a polymer layer thereon is placed in a microwave furnace cavity, and then swept with a range of microwave frequencies. The range of frequencies includes a central frequency selected to rapidly heat the polymer layer. The range of frequencies is selected to generate a plurality of modes within the cavity. The sweep rate is selected so as to avoid damage to the semiconductor substrate and/or any components thereon. The microwave power may be adjusted during frequency sweeping to control the temperature of the polymer layer and the semiconductor substrate. Effluent produced during the curing of the polymer layer may be removed from the furnace cavity. The extent of cure of the polymer layer may be determined by detecting power reflection for each microwave frequency within the range to provide power reflection data, and then comparing the power reflection data with a predetermined set of power reflection data.

IPC 1-7

B05D 3/02; **H01L 21/56**; **H01L 21/312**

IPC 8 full level

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CPC (source: EP US)

B05D 3/029 (2013.01 - EP US); **B24B 37/013** (2013.01 - EP US); **B29C 65/1425** (2013.01 - EP US); **B29C 66/71** (2013.01 - EP US); **B29C 66/712** (2013.01 - EP US); **B29C 66/73751** (2013.01 - EP US); **B29C 66/7394** (2013.01 - EP US); **B29C 66/91411** (2013.01 - EP US); **B29C 66/91443** (2013.01 - EP US); **B29C 66/9161** (2013.01 - EP US); **H01L 21/3105** (2013.01 - EP US); **H01L 21/56** (2013.01 - EP US); **H01L 22/26** (2013.01 - EP US); **B29C 66/00141** (2013.01 - EP US); **B29C 66/73112** (2013.01 - EP US); **B29C 66/8266** (2013.01 - EP US); **B29C 66/82661** (2013.01 - EP US); **B29C 66/964** (2013.01 - EP US); **H01L 2924/0002** (2013.01 - EP US)

Citation (search report)

See references of WO 9812000A1

Cited by

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